GB1025S383A5/1985

SANTA CLARA VALLEY WATER DIS
LIBRARY
5750 ALMADEN EXPRESSWAY
SAN JOSE, CALIFORNIA 95118

GAVILAN
WATER CONSERVATION DISTRICT

Faith Burwen Stoddard
Secretary/Manager

CHESTNUT SQUARE
401 E. TENTH ST., NO. 3
GILROY, CALIFORNIA 95020
(408) 847-7881

BOARD OF DIRECTORS
Div. 1: Michael C. Kennedy
Div. 2: Robert P. Chappell
Div. 3: Ben Gilroy, Jr.
Div. 4: Edward "Gene" Gewin
Div. 5: Robert D. Blaine

GAVILAN WATER CONSERVATION DISTRICT:
ANNUAL INVESTIGATION & REPORT OF GROUNDWATER CONDITIONS

MARCH 12, 1985

PASSED AND APPROVED

by

DISTRICT BOARD OF DIRECTORS

APRIL 9, 1985

GB
1025
S383.A5
v.1985

GAVILAN WATER CONSERVATION DISTRICT:
ANNUAL INVESTIGATION & REPORT OF GROUNDWATER CONDITIONS

MARCH 12, 1985

by

John J. Bozzo, Jr., Operations Supervisor

prepared for

DISTRICT BOARD OF DIRECTORS:

Robert Chappell, President	Division 2
Ben Gilroy, Vice President	Division 3
Robert Blaine	Division 5
Gene Gewin	Division 4
Michael Kennedy	Division 1

INTRODUCTION

The purpose of this report, in keeping with Section 75560 of the California Water Code, is to give an account of District groundwater conditions. Included are selected data for the consideration of the Board in its determination of (a) the annual overdraft, and (b) the accumulated overdraft as of the last day of the preceeding water year. Estimates are given, moreover, of annual overdrafts for the current water year 1984-85 and for the ensuing water year.

RESERVOIR STORAGE AND PERCOLATION

The 1983-84 water year, with normal rainfall and runoff, amply sustained a hydrologic balance in South Santa Clara Valley.* Uvas Reservoir attained a maximum Spring storage of 8177 acre-feet, after large fall flood releases were made (14,651 acre-feet). Chesbro Reservoir, after fall flood releases totaling 5765 acre-feet, attained a maximum spring storage of 6451 acre-feet.

These substantial quantities of captured runoff contributed significantly to underground recharge. Reservoir releases for percolation to Llagas Creek (and ultimately to the Church Avenue Groundwater Recharge Facility) amounted to 4616.26 acre-feet; 1896.42 acre-feet of this emanated from Uvas Reservoir by way of the Uvas/Llagas Transfer Conduit. The total release for percolation to Uvas Creek, meanwhile, was 6149.72 acre-feet.

---

* The City of Gilroy received 16.76 inches of its 20.00 inches average rainfall during 1983-84.

TOTAL WATER PRODUCTION FROM UNDERGROUND SUPPLIES AND THE ANNUAL OVERDRAFT

The total amount of water produced from groundwater supplies was approximately 22,000 acre-feet.* Agriculture accounted for about two-thirds of the extractions; with the remaining consumption ascribed to municipal, industrial, and domestic usage.

Because these groundwater extractions did not exceed natural replenishment, there was no annual overdraft of the basin during 1983-84.** Underground storage remained well above average, in fact, with a seasonal mean depth of 31.80 feet (a graph spanning the past 18 years of groundwater level records is provided on the following page).

ACCUMULATED OVERDRAFT AND PROJECTED OVERDRAFT CONDITIONS

A series of bountiful rainfall seasons, together with District conservation practices, has reclaimed the drought-induced accumulated overdraft (1976 through 1978) of underground water supplies. The long term mean-depth-to-groundwater of 54.1 feet was, in fact, eclipsed during the last water year by 22.30 feet (this inordinate upward trend can be ascribed, in part, to the recent demise of local agriculture and an attendant low demand for irrigation water).

---

*The figure for total groundwater extractions is based on user-charge reports which are shown in Appendix A.

**ANNUAL OVERDRAFT is defined by the California Water Code as "the amount, determined by the Board, by which the production of water from groundwater supplies within the District..... during the water year exceeds the natural replenishment of such groundwater supplies in such water year."

SOURCE: SSCVWCD MINUTES & WATERMASTER REPORTS
(MEASURED QUARTERLY PRIOR TO 1973)

Adequate (though underaverage) rainfall and runoff further ensures that groundwater levels will continue to remain above average during the present water year. The annual mean level is projected to be 38.33 feet (the recorded low was 48.33 feet and the expected high is 28.0 feet). The long-term mean annual level will, in fact, be exceeded by 15.77 feet.

The District can happily look forward to continued favorable water levels in the ensuing water year. This condition will be realized with even a near average precipitation and runoff season, since abundant reservoir storage (carry-over from the current water year) will be available for percolation at the start of the new season.

SUMMARY AND PROSPECT

In spite of the fact that a desirable level of groundwater is being maintained, the District may not (with present facilities) be able to keep pace with burgeoning demands for water. Consumption might be as high as 80,000 acre-feet by 1990, possibly creating a significant water deficit; the average annual yield of the District is about 68,000 acre-feet, including reservoir releases (Koretsky King Associates, Inc., 1976, p.7). A number of far-sighted measures are currently in the development stage.

Perhaps the most important countermeasure in offsetting a future overdraft of local water supplies is a sound and comprehensive program of study and planning. This philosophy has prompted the District's enlistment of a citizen's advisory committee to study the overall water conditions and needs of the South Santa Clara Valley-West Bolsa area. Through the advisement of the committee, the District Board of Directors will initiate those alternatives which best suit the future water needs of the South Valley.

The District, meanwhile, is expanding its ability to recharge the underground basin through continued development of percolation facilities. The Church Avenue Groundwater Recharge Facility, encompassing 57.5 acres near Llagas Creek, was recently brought to full operating capacity. The additional use of spreader dams within the Llagas Channel, furthermore, is increasing significantly the District's percolation program.

Water quality monitoring continues, furthermore, to be a District priority. This effort, which includes systematic sampling of surface and underground waters, helps to ensure the integrity of local resources.***

***Complete mineral scans (1983-84) of all waters used for artifical recharge within the District are included in Appendix B.

REFERENCES

Koretsky, King and Associates. 1976 Evalution of Water Conservation Alternatives for South Santa Clara Valley Water ConservationDistrict. (Santa Clara California: Anderson Nichols & Company)

State of California. 1977 Water Code. (Bancroft-Whitney Company, San Francisco, California).

United states Geological Survey. 1976 Mathematical Model of the West Bolsa Basin, San Benito County, California Prepared by Robert E. Faye. (Menlo Park, California: Water Resources Division).

ANNUAL INVESTIGATION & REPORT OF GROUNDWATER CONDITIONS

APPENDIX A

APPENDIX A

WATER USE AND INCOME PROJECTION
FOR FISCAL YEAR 1984-85

Note: Collection periods are January and July annually; each for the previous six months.

Income available in each fiscal year (July - June 30) comes from the collections from water used in each calendar year due to the water code's collection criteria.

Past Collections - Agricultural (Ag), Municipal & Industrial (M&I) Water

Used in Calendar Year	Collection Month	Acre Feet Ag	Acre Feet M&I	Acre Feet Total	Income at $3.25 Ag and $13.00 M&I Ag	M&I	Total
1981	July, 81	14,162	3,804	17,966	$46,026	$ 49,452	$ 95,479
	Jan, 82	9,065	5,468	14,533	$29,461	$ 71,083	$100,544
	TOTAL	23,227	9,272	32,499	$75,487	$120,535	$196,023
1982	July, 82	12,439	3,664	16,103	$40,425	$ 47,632	$ 88,057
	Jan, 83	10,841	5,528	16,369	$35,233	$ 71,865	$107,098
	TOTAL	23,280	9,192	32,472	$75,658	$119,497	$195,155
					Income at $5.00 Ag and $20.00 M&I (54% Increase)		
1983	July, 83	10,041	3,426	13,467	$50,205	$ 68,520	$118,725
	Jan, 84	7,667	5,789	13,456	$38,335	$115,780	$154,115
	TOTAL	17,708	9,215	26,923	$88,540	$184,300	$272,840
1984	July, 84	5,539	4,020	9,559	$27,696	$ 80,404	$108,100
	Jan, 85	7,167	5,503	12,670	$35,834	$110,075	$145,909
	TOTAL	12,706	9,523	22,229	$63,530	$190,479	$254,009

ANNUAL INVESTIGATION & REPORT OF GROUNDWATER CONDITIONS

APPENDIX B

MISSION LABORATORY
490 Mission Vineyard Rd.
P. O. Box 376
SAN JUAN BAUTISTA, CA 95045

JUL 1984
RECEIVED

APPENDIX B

WATER ANALYSIS

Gavilan Water Conservation Dist.
401 E. Tenth Street, No. 7
Gilroy, California 95020

Sample received: 6/19/84
Report date: 6/30/84
Lab Ref. XVIII-6, Log #6106
I.D. - Uvas Dam outlet:

DETERMINATION	MILLIGRAMS/LITER
Calcium (Ca)	32
Magnesium (Mg)	12
Total Hardness ($CaCO_3$)	129
Sodium (Na)	18
Chloride (Cl)	7
Sulfate (SO_4)	21
Nitrate (NO_3)	1
Fluoride (F)	0.2
Foaming Agents (MBAS)	0.0
Carbonate Alkalinity ($CaCO_3$)	0
Bicarbonate Alkalinity ($CaCO_3$)	140
Total Alkalinity ($CaCO_3$)	140
Conductivity - μmhos/cm @ 25°C	330
Dissolved Solids (gravimetric)	190
Acidity - pH (units)	7.5
Color (units)	15
Turbidity (N.T.U.)	5.0
Odor (T.O.)	1
Iron (Fe)	0.2
Manganese (Mn)	0.00
Copper (Cu)	0.0
Zinc (Zn)	0.0
Lead (Pb)	0.00
Silver (Ag)	0.00
Cadmium (Cd)	0.00
Chromium (Cr)	0.00
Barium (Ba)	0.0
Arsenic (As)	<0.01
Selenium (Se)	<0.01
Mercury (Hg)	<0.002

CHEMIST:
Jon M. Mansmith

(408) 623-4293

The liability of this corporation shall in no way exceed the amount paid for this report.

MISSION LABORATORY
490 Mission Vineyard Rd.
P. O. Box 376
SAN JUAN BAUTISTA, CA 95045

JUL 1984
RECEIVED

WATER ANALYSIS

Gavilan Water Conservation Dist.
401 East Tenth Street, No. 7
Gilroy, California 95020

Sample received: 6/19/84
Report date: 6/30/84
Lab Ref. XVIII-7, Log #6106
I.D. - Chesbro Dam outlet.

DETERMINATION	MILLIGRAMS/LITER
Calcium (Ca)	34
Magnesium (Mg)	16
Total Hardness ($CaCO_3$)	151
Sodium (Na)	18
Chloride (Cl)	9
Sulfate (SO_4)	10
Nitrate (NO_3)	1
Fluoride (F^-)	0.1
Foaming Agents (MBAS)	0.0
Carbonate Alkalinity ($CaCO_3$)	20
Bicarbonate Alkalinity ($CaCO_3$)	170
Total Alkalinity ($CaCO_3$)	190
Conductivity - µmhos/cm @ 25°C	380
Dissolved Solids (gravimetric)	270
Acidity - pH (units)	7.9
Color (units)	50
Turbidity (N.T.U.)	16
Odor (T.O.)	1
Iron (Fe)	0.8
Manganese (Mn)	0.26
Copper (Cu)	0.0
Zinc (Zn)	0.0
Lead (Pb)	0.00
Silver (Ag)	0.00
Cadmium (Cd)	0.00
Chromium (Cr)	0.00
Barium (Ba)	0.0
Arsenic (As)	<0.01
Selenium (Se)	<0.01
Mercury (Hg)	<0.002

CHEMIST:
Jon . . Hansmith

(408) 623-4293

The liability of this corporation shall in no way exceed the amount paid for this report.

MISSION LABORATORY
490 Mission Vineyard Rd.
P. O. Box 376
SAN JUAN BAUTISTA, CA 95045

JUL 1984
RECEIVED

WATER ANALYSIS

Gavilan Water Conservation Dist.
401 East Tenth Street, No. 7
Gilroy, California 95020

Sample received: 6/19/84
Report date: 6/30/84
Lab Ref. XVIII-7, Log #6106
I.D. - Llagas Creek midway sewer

DETERMINATION	MILLIGRAMS/LITER
Calcium (Ca)	83
Magnesium (Mg)	51
Total Hardness ($CaCO_3$)	417
Sodium (Na)	40
Chloride (Cl)	42
Sulfate (SO_4)	100
Nitrate (NO_3)	97
Fluoride (F)	0.2
Foaming Agents (MBAS)	0.0
Carbonate Alkalinity ($CaCO_3$)	40
Bicarbonate Alkalinity ($CaCO_3$)	270
Total Alkalinity ($CaCO_3$)	310
Conductivity - µmhos/cm @ 25°C	1,030
Dissolved Solids (gravimetric)	850
Acidity - pH (units)	8.0
Color (units)	15
Turbidity (N.T.U.)	2.8
Odor (T.O.)	1
Iron (Fe)	0.2
Manganese (Mn)	0.33
Copper (Cu)	0.0
Zinc (Zn)	0.0
Lead (Pb)	0.00
Silver (Ag)	0.00
Cadmium (Cd)	0.00
Chromium (Cr)	0.00
Barium (Ba)	0.1
Arsenic (As)	<0.01
Selenium (Se)	<0.01
Mercury (Hg)	<0.002

CHEMIST: ____________

Jon M. Mansmith

The liability of this corporation shall in no way exceed the amount paid for this report.

MISSION LABORATORY
490 Mission Vineyard Rd.
P. O. Box 376
SAN JUAN BAUTISTA, CA 95045

WATER ANALYSIS

Gavilan Water Conservation Dist.
401 East Tenth Street, No. 7
Gilroy, California 95020

Sample received: 6/19/84
Report date: 6/30/84
Lab Ref. XVIII-6, Log #6106
I.D. - Uvas Creek @ Santa Teresa

DETERMINATION	MILLIGRAMS/LITER
Calcium (Ca)	34
Magnesium (Mg)	12
Total Hardness ($CaCO_3$)	134
Sodium (Na)	22
Chloride (Cl)	11
Sulfate (SO_4)	22
Nitrate (NO_3)	9
Fluoride (F)	0.2
Foaming Agents (MBAS)	0.0
Carbonate Alkalinity ($CaCO_3$)	0
Bicarbonate Alkalinity ($CaCO_3$)	140
Total Alkalinity ($CaCO_3$)	140
Conductivity - µmhos/cm @ 25°C	380
Dissolved Solids (gravimetric)	190
Acidity - pH (units)	7.5
Color (units)	10
Turbidity (N.T.U.)	1.2
Odor (T.O.)	1
Iron (Fe)	0.2
Manganese (Mn)	0.05
Copper (Cu)	0.0
Zinc (Zn)	0.0
Lead (Pb)	0.00
Silver (Ag)	0.00
Cadmium (Cd)	0.00
Chromium (Cr)	0.00
Barium (Ba)	0.0
Arsenic (As)	<0.01
Selenium (Se)	<0.01
Mercury (Hg)	<0.002

CHEMIST: ____________
Jon M. Mansmith

(408) 623-4293

The liability of this corporation shall in no way exceed the amount paid for this report.

MISSION LABORATORY
490 Mission Vineyard Rd.
P. O. Box 376
SAN JUAN BAUTISTA, CA 95045

JUL 1984
RECEIVED

WATER ANALYSIS

Gavilan Water Conservation Dist.
401 East Tenth Street, No. 7
Gilroy, California 95020

Sample received: 6/19/84
Report date: 6/30/84
Lab Ref. XVIII-7, Log #6106
I.D. - Llagas Creek @ Church Ave

DETERMINATION	MILLIGRAMS/LITER
Calcium (Ca)	31
Magnesium (Mg)	14
Total Hardness ($CaCO_3$)	135
Sodium (Na)	18
Chloride (Cl)	8
Sulfate (SO_4)	18
Nitrate (NO_3)	1
Fluoride (F)	0.1
Foaming Agents (MBAS)	0.0
Carbonate Alkalinity ($CaCO_3$)	0
Bicarbonate Alkalinity ($CaCO_3$)	160
Total Alkalinity ($CaCO_3$)	160
Conductivity - µmhos/cm @ 25°C	350
Dissolved Solids (gravimetric)	230
Acidity - pH (units)	7.6
Color (units)	12
Turbidity (N.T.U.)	1.4
Odor (T.O.)	1
Iron (Fe)	0.2
Manganese (Mn)	0.03
Copper (Cu)	0.0
Zinc (Zn)	0.0
Lead (Pb)	0.00
Silver (Ag)	0.00
Cadmium (Cd)	0.00
Chromium (Cr)	0.00
Barium (Ba)	0.0
Arsenic (As)	<0.01
Selenium (Se)	<0.01
Mercury (Hg)	<0.002

CHEMIST: ______________

Jon L. Mansmith

The liability of this corporation shall in no way exceed the amount paid for this report.